

# Back-It 4

Now Supports  
MS DOS™ 5.0  
DR DOS™ 5.0

*The First Totally Automatic,  
Full-Featured Backup System*









---

# Back-It 4<sup>TM</sup>

---

*The Only Trustworthy, Automatic  
Backup Solution.*

A.S. Technology  
12 St. Peters Court  
Middleborough  
Dorset  
Exeter CO1 1WD  
0206 573903  
Fax 0206 573904

Back-It 4  
Version 1.1  
Copyright Gazette Systems 1988, 1991  
All Rights Reserved  
Printed under license in the U.K.

---



---

# Back-It 4:

## For Incredibly Fast Backups

---

FOR CORPORATE SITE LICENSING OR OTHER  
SALES INFORMATION CONTACT:

A.S. Technology  
12 St. Peters Court  
Middleborough  
Colchester  
Essex CO1 IWD  
0206 573963  
Fax 0206 578504

Back-It 4  
Version 1.1  
Copyright Gazelle Systems 1988, 1991  
All Rights Reserved  
Printed under licence in the U.K.

---



# TABLE OF CONTENTS

LIMITED WARRANTY .....	3
TECHNICAL SUPPORT .....	5
GETTING STARTED .....	6
INSTALLATION .....	8
RUNNING BACK-IT 4 .....	10
QUICK START .....	11
BACKUP .....	15
BACKUP DEFINITION .....	15
BACKUP MANAGER .....	26
SCHEDULE .....	27
CALENDAR .....	29
BACKUP .....	29
RESTORE .....	32
DIRECT RESTORE FROM BACKUP SET .....	32
REPORT MANAGER FOR REPORT FILES .....	38
GENERATE REPORT FROM BACKUP SET .....	42
CONFIGURE .....	43
FLOPPY .....	43
TAPE .....	45
DOS DEVICE .....	46
COLOR SETUP .....	46
OTHER SETTINGS .....	47
SAVE CURRENT CONFIGURATION .....	50



APPENDIX A - BACKUP STRATEGIES.....	51
APPENDIX B - BACKUP CHECKLIST .....	57
APPENDIX C - BKUTIL .....	58
APPENDIX D - BKLOCK .....	67
APPENDIX E - LAN ADMINISTRATOR'S GUIDE .....	68
INSTALLATION .....	70
NETWORK BACKUP .....	72
GLOSSARY .....	74



Congratulations! You have purchased the finest, easiest-to-use and safest backup system available. The documentation found in this Reference Manual will guide you step-by-step through this latest version of Back-It 4. You also will find on-line help available from any screen. In the event you need additional help with Back-It 4, please call our product support number found on the inside of the title page.

We believe Back-It 4 will exceed your backup expectations due to its:

- Speed
- Reliability
- Hardware Compatibility
- Flexibility

Here are some of the features available in Back-It 4.

**Compression** - Files may be backed up using three different levels of compression, allowing you to fine tune your backup for the best performance possible.

**Mouse Support** - You may move through menu selections in Back-It 4 by moving the mouse.

**Tape Support** - Back-It 4 will backup files to tape drives.

**Network Support** - Back-It 4 will backup files from any network that supports standard DOS commands.

**Advanced Error Prevention** - Back-It 4 prevents backup information written to defective parts of the backup media.

**Advanced Error Correction** - Back-It 4 can recover data from damaged backup media.

**Selective Backups** - Specific files may easily be selected for backup. Back-It 4's unique Backup Manager allows you to save specific backup configurations.

**Multiple Volume Backups** - You may back up as many volumes (drives or partitions) as you wish, instead of doing an individual backup for each volume separately.

**Pictorial Directory Map** - You can select directories for backup with point-and-shoot simplicity.



**Selective Restoring** - Back-It 4 can restore any number of files without disturbing existing information on the disk.

**Total DMA Support** - Back-It 4 has two Direct Memory Access (DMA) speeds to get the maximum available speed from your hardware.

**Total DOS Compatibility** - Back-It 4 can back up from or to any device that DOS recognizes as a drive, including removable storage (such as a Bernoulli Box®), hard disks, floppy disks, networks, and some tape drives.

**No File Limitation** - Any number of files or file sizes can be backed up in a single operation.

**Automatic Diskette Formatting** - Back-It 4 formats diskettes during the backup, so pre-formatted diskettes are not necessary (diskette-backup only).

## PROGRAM LIMITATIONS

Here are some things to be aware of when planning your backups.

- Back-It 4 does not back up the hidden system files (IBMBIO and IBMDOS). This is actually beneficial since accidental restoration of these files would cause your system to crash. All other hidden files are backed up.
- Back-It 4 is not compatible with earlier versions of Back-It from Gazelle Systems. Do not try to use Back-It 4 to restore data backed up by any other version. You should save a copy of your Back-It 3 software with your Back-It 3 backup diskettes to assure the capability of future file restoration. Perform a new full backup with Back-It 4 before you erase diskettes from previous backups.
- Back-It 4 does not append partial backups to previous full-backups on floppy drives.
- The new 2.8MB floppy disk format is currently not supported.

We strongly recommend that Back-It 4 not be run on a non-dedicated network file server. Back-It 4 can be installed on the server and *run from a node* without difficulty.



## **LIMITED WARRANTY**

Gazelle Systems warrants that the magnetic diskette on which the enclosed computer software is recorded and the documentation provided with it are free from physical defects in materials and workmanship under normal use.

Gazelle warrants that the computer software itself will perform substantially in accordance with the specifications set forth in the documentation provided with the software and in the current Product Fact Sheet for the software published by Gazelle.

Gazelle warrants that the software is compatible with IBM® PC/XT/AT and PS/2 microcomputers and 100% compatible computers only.

### **WARRANTY PERIOD**

The above warranties are made for ninety (90) days from the date of original retail delivery to licensee.

### **WHAT GAZELLE WILL DO**

Gazelle will replace any magnetic diskette or documentation which proves defective in materials or workmanship without charge.

Gazelle will either replace or correct any software that does not perform substantially according to the specifications set forth in the documentation or the current Product Fact Sheet with a corrected copy of the software or corrective code. In the case of an error in the documentation, Gazelle will correct errors in the documentation without charge by providing addenda or substitute pages.

If Gazelle is unable to replace defective documentation or a defective diskette, or if Gazelle is unable to provide corrected software or corrected documentation within a reasonable time, Gazelle will either replace the software with a functionally similar program or refund the purchase price paid for the software.

### **WHAT GAZELLE WILL NOT DO**

Gazelle does not warrant that the software will meet licensee's requirements or that the software or documentation are error free or that the operation of the software will be uninterrupted.

The warranty does not cover any diskette or documentation which has been damaged or abused. The software warranty does not cover any software which has been altered or changed in any way by anyone other than Gazelle Systems.



Gazelle is not responsible for problems caused by computer hardware, computer operating systems or the use of Gazelle's software with non-Gazelle software.

ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED AND EXCLUDED. GAZELLE SHALL NOT IN ANY CASE BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT, OR OTHER SIMILAR DAMAGES EVEN IF GAZELLE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Gazelle is not responsible for any costs incurred as a result of lost profits or revenue, loss of use of the software, loss of data, cost of re-creating lost data, the cost of any substitute program, claims by any party other than licensee, or for other similar costs.

LICENSEE'S SOLE AND EXCLUSIVE REMEDY IS SET FORTH IN THIS LIMITED WARRANTY. GAZELLE'S AGGREGATE LIABILITY ARISING FROM OR RELATING TO THIS AGREEMENT OR THE SOFTWARE OR DOCUMENTATION (REGARDLESS OF THE FORM OF ACTION - E.G. CONTRACT, TORT, COMPUTER MALPRACTICE, FRAUD AND/OR OTHERWISE) IS LIMITED TO THE PURCHASE PRICE PAID BY THE LICENSEE.

### **WHAT LICENSEE MUST DO**

Licensee must return the defective item to Gazelle postpaid within ninety (90) days of the original retail delivery. Please contact the manufacturer for an RMA (Returned Merchandise Authorization) number.

Licensee must either insure the defective item being returned or assume the risk of loss or damage in transit.

Any claim under the above warranty must include a dated proof of purchase, such as a copy of the sales receipt or invoice.

### **OTHER CONDITIONS**

This Limited Warranty (including the limitations on liability) is an allocation of risk and Gazelle's software pricing reflects this allocation.

This Limited Warranty is in lieu of all other warranties, whether oral or written.



The agents, employees, distributors, and dealers of Gazelle may not modify this Limited Warranty or make additional warranties binding on Gazelle.

## TECHNICAL SUPPORT

Gazelle takes pride in Back-It 4 and its user friendliness. Most of the answers to your questions regarding Back-It 4 are found in this manual. On-line help is available on each screen.

In the event that you need further assistance in using Back-It4, Gazelle has a product support program designed to offer you fast, courteous service. Please call our technical support number (0206) 573963. However, if you encounter problems, we suggest you first try the following:

1. Make sure your system meets the minimum Back-It 4 system requirements.
2. Refer to Appendix A: Backup Strategies.
3. Double-check your installation procedures and reinstall the BackIt 4 program if necessary.

If the problem still persists, follow these steps:

Try to duplicate the problem, keystroke by keystroke.

Be at your computer when you call customer support.

Please have the following information on hand when you call:

1. Date and time of your BK4.EXE file.
2. System configuration (type of computer, DOS version, etc.)

Our technical support number (0206) 573963 is available Monday through Friday 9.00 am - 5:30 pm.



# GETTING STARTED

Getting started with Back-It 4 is easy. This section of the manual is designed to assist you in performing the following important functions:

- Confirming you have the minimal system requirements
- Assuring you have all Back-It 4 materials
- Installing Back-It 4
- Running Back-It 4 from DOS
- Configuring Back-It 4 on your system
- Understanding all Back-It 4 screens

## SYSTEM REQUIREMENTS

Before you begin using Back-It 4, make sure that your hardware configuration meets these minimum system requirements:

- IBM PC, XT, AT, PS/2 (or 100% compatible)
- PC-DOS/MS-DOS version 2.0 or higher
- 384K RAM (Random Access Memory)
- Mass Storage Device (Hard disk, Disk-On-A-Card, Bernoulli Disk, Removable Cartridge, Network, etc.)

## MATERIALS

The following materials should be included in your Back-It4 package:

Reference Manual

Registration Card (return within 10 days)

Software diskette containing the following program files:

**BACKIT01.PRS** - preset configuration file

**BACKIT02.PRS** - preset configuration file

**BACKIT.GZC** - help information for Back-It 4

**BK4.CFG** - Back-It 4 configuration file

**BK4.EXE** - main program

**BKCOLOR.EXE** - color configuration program

**BKSCHED.COM** - Back-It 4 scheduler

**BKSETUP.EXE** - installation program

**DMATEST.EXE** - program to test your computer's Direct

Memory Access chip

**PRESET.CFG** - preset configuration file

**README.TXT** - additional product information or changes to the Back-It 4 manual



**RPTMANG.EXE** - utility to help manage the backup reports produced by Back-It 4

**BKUTIL.EXE** - utility to configure tape devices

**README.EXE** - utility to display files with .TXT extensions

**TAPE.TXT** - list of tape drives currently supported

**.GSD** - extension of several tape configuration files

Use the enclosed **README.EXE** program to view the text files with .TXT extensions. For example, to view **TAPE.TXT**, type in the following and press ENTER:

## **README TAPE.TXT**

### **What You Need To Know**

Before you install Back-It 4 Windows, make sure you have installed Microsoft Windows on your system.

To use Back-It 4 Windows most effectively, you should be familiar with the Microsoft Windows environment. Specifically, you should know how to:

- Move, size, close, and scroll windows
- Choose a command from a drop-down menu
- Work in a dialog box and use the Control menu

To become familiar with Windows, please read your Microsoft Windows User's Guide.



# INSTALLATION

Back-It 4 has been designed so installation is fast and easy. The **BKSETUP** program, included on your software diskette, is used to configure Back-It 4 so it will work properly with your system.

Before you begin the actual installation process we recommend you make a copy of your program diskette(s). This can be done with the DOS **DISKCOPY** command (see your DOS manual for more information). To install Back-It 4 on your computer, follow these steps:

1. Insert the serialized Back-It 4 program diskette into floppy drive A:. (If installing from drive B:, substitute B: for A:).
2. Type **A:** and press ENTER.
3. Type **BKSETUP** and press ENTER.

If you have already installed Back-It 4 and want to reinstall it in the same subdirectory, **BKSETUP** will overwrite the duplicate files and add the new files.

4. The opening screen of the install program describes the steps you will complete as you install Back-It 4. Read through this introductory information and then press any key to continue. Press ESC to abort.
5. The next screen asks you to type the drive letter where Back-It 4 is to be installed.

For example, if you want Back-It 4 to be installed on a hard disk which has been assigned the DOS drive letter C:, simply press C.

*NOTE: It is not necessary to press ENTER after pressing the C key.*

6. Next, the installation screen will prompt you for the target directory where you would like the program files to be installed. The DOS Environment Variable BACKIT will be set to this path and inserted in your **AUTOEXEC.BAT** file.

The default directory **C:\BACKIT4** is shown. Press ENTER to accept the default or type a different target path and press ENTER.



*NOTE: You will not be able to change the target drive letter displayed as part of the target path. To do so requires that you press ESC to abort the installation procedure and then restart the program.*

7. BKSETUP now begins copying the necessary files. A moving indicator will point to the file that is currently being installed and a message will be displayed when you are to insert Disk #2 if necessary.
8. After all files have been copied, you will be prompted to confirm the target directory where you would like Back-It 4 to place the backup report files. The DOS Environment Variable BKOUT will be set to this path and inserted in your AUTOEXEC.BAT file. If you do not want to set a separate path for the backup report files, press ENTER and the default will be accepted. Otherwise, type a new path and press ENTER.
9. BKSETUP now asks if you want the Back-It 4 path automatically added to your AUTOEXEC.BAT file. Press Y or N.
10. You will now be asked if you want the BKSCHED command added to your AUTOEXEC.BAT file. Back-It 4 will not run scheduled backup presets unless BKSCHED has been loaded into memory. Adding BKSCHED to AUTOEXEC.BAT is the most convenient method of accomplishing this. Press Y or N.
11. Next, you will be asked to define your floppy drive configuration. Enter the appropriate number or letter corresponding to the drive types available on your machine. Press Y if everything is configured correctly, or N if a change should be made.
12. Next you will be requested to complete the color settings and DMA Test procedure. Please refer to Section 5 for descriptions of these functions.
13. Since changes may have been made to your AUTOEXEC.BAT file, your system will need to be rebooted in order for these changes to take effect. Press Y to reboot now or N to continue.
14. Upon completion of the entire installation process, you will be returned to the BKSETUP main menu. Press Q to exit and return to the DOS prompt.
15. Run BKUTIL and configure any tape drives installed on your PC.



## RUNNING BACK-IT 4

There are two ways you can run Back-It 4 from the DOS prompt:

Type **BK4** at the DOS prompt and press ENTER. This will provide you with a menu of program options.

Type **BK4** followed by a preset name.

### Command Line Parameters

This release of Back-It 4 provides several parameters. These parameters can be entered at the command line to override certain defaults or set special switches in the program.

**/Z** The "Zenith Special" is for Zenith (or other) computers that do not recognize that a new diskette has been inserted in the floppy drive. By typing **BK4 /Z** when running Back-It 4, your computer will turn off the floppy drive and wait for a key press before using the next diskette in a backup or restore.

To run a preset via the Scheduler with the **/Z** switch, you must first modify the **BKSCHEM** command in your **AUTOEXEC.BAT** file to read **BKSCHEM /Z** (include a space before the forward slash). *Without this change a scheduled preset backup will not incorporate this command line parameter.*

The next two command line parameters should be used only when you cannot access your disk drives.

**/S** Use this switch to force all four floppy drives to the secondary disk controller.

**/P** Use this switch to force all four floppy drives to the primary disk controller. This version of Back-It 4 assumes if a secondary disk controller is found, the 3rd and 4th floppy drives will be assigned to it. This command line switch over-rides the assumption.

*NOTE: If you still cannot access your drives after using the **/S** and **/P** parameters, call Gazelles's Product Support for more help.*

**/D** Use this switch to force a DOS-call DIR map scan instead of Back-It 4 attempting a fast scan of the disk. This prevents some incompatibilities on non-Novell networks and substituted and joined drives.



**/N** This switch must be used to run Back-It 4 on a non-dedicated Novell file server. The **/D** switch should be used in conjunction with the **/N** command.

*NOTE: All of these command line parameters may be used when running the scheduler BKSCHED.COM to pass each to BK4.EXE when it is started.*

## QUICK START

The following has been provided to make it easy for you to perform a “no-frills” backup. There are no explanations or descriptions of the features, just the necessary steps.

Both the Full and the Partial examples that follow are based on the assumption that Back-It 4 has been successfully installed using the procedures described in the Installation section of this chapter.

### Full BACKUP OF DRIVE C:

The following steps will provide a complete backup of all directories and files on drive C: to 1.2MB floppies in drive A:

1. From the DOS prompt, type **BK4** and press ENTER.
2. From the Back-It 4 Main Menu, press **B** (Backup) and then **D** (Direct Backup).
3. From the Define Backup screen, press DOWN once (Source), then press ENTER.
4. To tag the C: drive for backup, highlight C: (in most cases it will already be highlighted) and press SPACE. Now press ENTER to return to the Define Backup screen.
5. The Destination box is now highlighted.

If the destination does not read FLOPPIES - A:(1.2=1.2), press ENTER. Then highlight the Floppies: option with the ARROW keys and press ENTER again to return to the Define Backup screen.

If the destination does read FLOPPIES - A:(1.2=1.2), continue with step 6.



6. Place the first floppy in drive A: and press F2. The backup will begin and Back-It 4 will prompt you when to insert each additional floppy.

### **Partial Backup of Drive C:**

The following steps will provide a backup of only new and modified files in all directories on drive C: to 1.2MB floppies in drive A:

1. From the DOS prompt, type **BK4** and press ENTER.
2. From the Back-It 4 Main Menu, press B (Backup) and then D (Direct Backup).
3. From the Define Backup screen, press DOWN once (Source), then press ENTER.
4. To tag the C: drive for backup, highlight C: (in most cases it will already be highlighted) and press SPACE. Now press ENTER to return to the Define Backup screen.
5. The Destination box is now highlighted.

If the destination does not read FLOPPIES - A:(1.2=1.2), press ENTER. Then highlight the Floppies: option with the ARROW keys and press ENTER again to return to the Define Backup screen.

If the destination does read FLOPPIES - A:(1.2=1.2), continue with step 6.

6. The highlight bar should now be in the File Selections box at the Modified only? option. Press SPACE once to change the option to YES.
7. Place the first floppy in drive A: and press F2. The backup will begin and Back-It 4 will prompt you when to insert each additional floppy.



# MAIN SCREEN

From here, you select commands, functions, and options. Help information is displayed in a window at the lower portion of the screen.

BackupRestoreConfigureQuit

F1 - Help

Backup Manager  
Direct Backup

Menu Option Description

This command allows you to create, modify, schedule, delete, and run up to 50 different backup configurations

Back-It 4 -- Version 1.1(C) Copyright 1991 Gazelle Systems

Back-It 4's main screen offers simple descriptions of each command as they are selected.

F1 - HelpF2 - BackupF5 - Restore defaultsF9 - Estimate

Name

Name: MONDAYDescription: Backup data files only on Monday

Source

Backup From: C:

Destination

Backup To: FLOPPIES - A:(720+720)

File Selections

Modified only?: YES  
Include filespecs: (see window)  
Exclude filespecs: (see window)  
Start date range: Jan 1, 2099  
Last date range: Dec 31, 2099

Parameters

Verification: Super  
Compression: Super  
Error correction: Normal  
Archive flag: Reset  
Overwrite: no  
Force Estimate: YES

Back-It 4Define Backupby Gazelle

Using this screen, you build each backup whether it is to be performed once in a Direct Backup, or saved and used later using Back-It 4's Backup Manager.

Back-It 4

Page 13



## COMMAND SELECTION

The four Back-It 4 commands are located at the top of the screen.

There are two ways to choose a command from the menu line:

Move the cursor with the LEFT or RIGHT keys until the desired command is highlighted, then press ENTER or DOWN

- or -

Press the first letter of the desired command (i.e., B, R, C, or Q).

## FUNCTION SELECTION

When the Backup, Restore, or Configure command is selected, a “pull-down” menu is displayed. This menu lists the functions available for the selected command. There are two ways to select a function from the menu:

Move the cursor with the UP or DOWN keys until the desired function is highlighted, then press ENTER

- or -

Press the first letter of the desired function.

## ESCAPE

At any time you may press ESC to return to the previous level in the command structure. The ESC key also cancels any command while in progress, including a backup or restore that is already running. This allows you to recover from commands that were executed improperly and gives you more control over the operation of the program.

## HELP

As each command, function, and option is selected, a brief explanation appears on screen, along with instructions describing how to enter information, toggle options, and return to the previous command level.

Additional help is available by pressing F1.



## QUIT

Users can easily exit Back-It 4 by selecting the Quit command.

In addition, you can exit Back-It 4 (and return to the DOS prompt) from the Main Menu by pressing F10.

## BACKUP

The Backup command on the main menu displays two choices:

1. Backup Manager for setting up and running standard, frequently-repeated backups.
2. Direct Backup for quick definition and execution of one-time, custom backups.

There are two ways to select from the menu:

Highlight the desired function using the ARROW keys and press ENTER

- or -

Press the first letter of the choice.

## BACKUP DEFINITION

There are two ways to arrive at the Define Backup screen:

Select Direct Backup from the Main Menu and press ENTER, or press D.

- or -

Select Backup Manager from the Main Menu and press ENTER, or press B. From the Backup Manager screen either select Edit or Add and press ENTER.

A solid highlight-line (the box cursor) surrounds each definition option as it is selected. Use the ARROW keys to move between selections. Use PG UP or PG DN to move between boxes.

To edit an option, highlight the option with the ARROW keys and press ENTER.



## **NAME**

The Name box is found at the top of the Edit Backup screen. This option allows users to create a name and description for each Preset definition.

### **NAME**

The first time you enter the Define Backup screen, the cursor appears in the field to the right of the word Name, allowing you to type in the name of your Preset. The name may be edited using the ARROW and BACKSPACE keys. Any name can be up to 15 characters long, including spaces, and must be unique. When you have typed the name, press ENTER. If you press ESC, the data changes will be ignored and you will be returned to the Name field.

### **DESCRIPTION**

When you have successfully entered a name, the cursor automatically moves to the field next to the word Description, allowing you to type in a description of your Preset. Each description can be up to 35 characters long and may be edited using the ARROW and BACKSPACE keys. Descriptions should include information about what the defined backup accomplishes.

### **SOURCE**

The Source box is located underneath the Name box on the Definition screen. This option allows you to specify which volumes and directories to back up.

To enter the Source definition, highlight Backup From: in the Source box and press ENTER. A window appears showing the drives and/or volumes available on your system.

To select an entire drive for backup, highlight the drive letter with the ARROW keys and press SPACE. This procedure tags the drive for inclusion in the backup. When a drive is tagged, a triangular pointer appears in front of it. Back-It 4 allows you to tag an unlimited number of drives for inclusion in a backup.

By default, all directories are included for backup when a drive is tagged. To specify only certain directories for backup, highlight the name of the drive containing the directories and press D. Back-It 4 then displays a directory map of the drive.



When the directory map is displayed you can tag and untag the directories to be selected for backup. Tagged directories have a triangle or a square in front of the directory name.

## **MOVING THROUGH THE DIRECTORY MAP**

Use the **ARROW** and positioning keys (**UP**, **DOWN**, **RIGHT**, **LEFT**, **BACKSPACE**, **PGUP**, **PGDN**, **HOME**, **END**) to move through the directory structure.

**NOTE:** **BACKSPACE** moves the cursor to the parent of the highlighted directory.

As you move through the directory map, the statistics box in the upper right corner of the screen will display the total number of files and bytes in the directory currently being highlighted. As you tag directories, the second box will display the total files and bytes currently tagged for backup. Please note, however, that if you use the Quicker option in the Directory Map display, the number of files and bytes will not display.

To quickly move the cursor to a specific directory, hold down the **ALT** key and at the same time press the first character of the directory name. This moves the cursor to the next directory that starts with the specified character.

## **TAGGING AND UNTAGGING DIRECTORIES**

To tag directory branches for backup, move the cursor to the directory name and press **T**. This will place a small triangle at the highlighted directory and at all related subdirectories in that branch. If, at any time in the future, you create additional directories in this particular directory branch, they will automatically be included in future backups.

To tag all directories in the map, highlight the root directory and press **T**. To tag only one directory (and not the related subdirectories in the branch), highlight the directory name and press **SPACE**.

There may be occasions when you will create temporary or "junk" subdirectories in directory branches that are regularly backed up. If you do not want these future subdirectories included in your preset backups, use the Limited Tag feature. Highlight the desired directory and press **L**. When directories are tagged with a Limited Tag, the tag appears as a square, rather than a triangular pointer, indicating that the individual



directory has been tagged and any future subdirectories will not be backed up.

To untag directory branches, move the cursor to the directory and press U. To untag all directories in the map, highlight the root directory and press U.

When you are finished tagging and untagging directories, press ENTER. This returns you to the Source/Volumes window. Press ENTER again to return to the Define Backup screen.

## ESTIMATION

Once you have specified the directories to be included in the backup, Back-It 4 can display the number of bytes and files to be included and estimate the number of disks required. To calculate the estimate, press F9 while you are in the Define Backup screen.

*NOTE: The diskette estimate is based on the number of bytes tagged. Many factors can affect the number of diskettes that will actually be required.*

## DESTINATION

The Destination box is located under the Source box on the Definition screen. This option tells Back-It 4 where to put the files it is backing up.

To change the backup destination, highlight the Destination box with the ARROW keys and press ENTER. A destination selection window appears.

This window lists three destination options: Floppies, **Tape** and DOS Device. The current destination is highlighted. To select a destination listed on the window, highlight the desired destination with the UP or DOWN keys and press ENTER.

If the Floppies option is selected, the backup will take place to the floppy drive configuration shown. If **Tape** is selected, Back-It 4 will place the backup to the tape drive shown. If DOS Device is selected, Back-It 4 will place the backup in the default directory path shown.



## EDITING THE DESTINATION CONFIGURATION

If you wish to edit the configuration for the selected destination device, highlight the device and press SPACE. Back-It 4 gives you access to the Configure options where you may reconfigure the destination as you desire.

To exit from the configuration window, press ENTER. New configuration settings are automatically saved as you return to the Destination Selection window.

Press ENTER once more to return to the File Selections box of the Define Backup screen.

## FILE SELECTIONS

The File Selections box contains options allowing you to select specific types of files for the backup. The selection criteria are:

- Status - whether or not each file has been modified since the last backup.

- Name - individual file names or more general file specifications using DOS wildcards.

- Date - a specific date or range of dates.

To select an option, use the ARROW keys to highlight your choice and then press SPACE to change the option setting.

## MODIFIED ONLY

The Modified Only? option allows you to indicate whether you want to define a modified or a full backup. A modified (or partial) backup is one where only new files and files that have been modified since the last backup are included in the current backup. A full backup includes all files, whether modified or not. The DOS archive flag is used to determine whether a backup is modified or full (see your DOS Manual for more information on the archive flag).

To change Modified Only?, highlight that option in the File Selections box with the ARROW keys. Then press SPACE to toggle the Modified Only? option between the two choices, Yes and No.



## YES

With Modified Only? set to Yes, Back-It 4 performs a modified backup.

## NO

With Modified Only? set to No, Back-It 4 performs a full backup.

## FILESPECS

The Include/Exclude Filespecs options enable you to be selective of which files to back up. Back-It 4 allows you to specify up to 16 file specifications (called "Filespecs") for backup inclusion and exclusion. Each filespec can be an individual file name and can include the DOS volume name. DOS wildcard characters can also be used.

### INCLUDE FILESPECS

During the backup, Back-It 4 searches the directories on the source drive to see which files match the Include Filespecs. If no file names match any of these specifications, no files are included in the backup.

If a file name matches one of the Include Filespecs, Back-It4 checks to see if it matches any of the Exclude Filespecs. If a file matches one of the excludes, it is not included in the backup. *Exclude Filespecs have priority over Include Filespecs.* This means that if a file name matches both an Include Filespec and an Exclude Filespec it is excluded from the backup.

To edit the filespecs, use the ARROW keys to position the cursor on either Include Filespecs or Exclude Filespecs and then press ENTER.

When Include Filespecs is selected, the default of \*.\* automatically appears on the first line. This means all files are automatically included in the backup.

*NOTE: When changing the Include File Specifications list, delete this default specification before adding other specifications.*

To add your own Include Filespecs, use the UP and DOWN keys to move to an available line. Enter the desired file strings, e.g., \*.BAT, \*.DOC, etc. You may delete the default \*.\* file specification using the BACKSPACE or DEL keys.

When you have completed the Include Filespec, press ENTER to move to the next line. Repeat the above procedure for all necessary Include file specifications.



When all of the file specifications are completed, press ESC to accept your changes and return to the File Selections box.

## **EXCLUDE FILESPECS**

When Exclude Filespecs is selected, a list of up to 16 file specifications for exclusion from the backup is displayed. The screen lists no default exclusions.

To add your own Exclude Filespecs, use the same procedure as described for Include Filespecs above.

When you have entered the necessary filespecs, press ESC to accept your changes and return to the File Selections box.

## **DATE RANGE**

The Date Range options specify a start date and an end date for a file's eligibility for the backup. Files with dates prior to the start date or after the end date will be excluded from the backup.

The default date range (beginning Jan 1, 1980 and ending Dec 31, 2099) should include all files on your system that need to be backed up. You can narrow the range as needed to selectively back up any set of files by their dates.

### **Start Date Range**

The Start Date Range specifies the earliest file date that can be included in the backup. A file whose date is the same as the start date will be included in the backup.

To change the start date, highlight Start Date Range and press ENTER. Use the LEFT and RIGHT keys to move between the month, date, and year fields. Use the UP and DOWN keys to change the settings for each field: UP moves the setting forward, DOWN moves the setting backward.

When you have selected the desired start date, press ENTER.

### **Last Date Range**

The Last Date Range specifies the latest file date that can be included in the backup. A file with a date the same as the end date will be included in the backup.



To change the end date, use the same keystrokes as listed above for the Start Date Range option. When you have selected the desired end date, press ENTER.

## PARAMETERS

Back-It 4's optional parameter settings enable you to customize backup functionality. The following parameters can be modified to meet your specific backup needs:

**Verification** - you can choose the level of media verification performed as your data is backed up.

**Compression** - three levels of data compression will reduce the size and increase the speed of your backup.

**Error Correction** - makes it possible to reconstruct backup data that may become corrupted later on.

**Archive Flag** - you can select whether a file's archive flag is reset at the conclusion of a backup.

**Overwrite** - you can select whether the program will prompt you in case files already exist on the destination media.

**Force Estimate** - when set to Yes, an estimate of the bytes tagged and floppies required will automatically display.

To change any of these parameters, use the ARROW keys to highlight the desired option and then press SPACE to toggle the option choices.

## VERIFICATION

Verification ensures that the data read from the source is the same as the data being written to the destination. The Verification parameter allows you to choose the level of verification performed as your data is backed up. There are three levels to choose from:

### Off

When Off is selected, no verification is performed, allowing Back-It 4 to operate at its fastest. However, it's possible that information could be written to a bad sector on the destination floppy diskette.

### Normal

When Normal is selected, Back-It 4 performs a CRC (cyclical redun-



dancy check). This is the same type of verification done by DOS. Normal verification slows the backup slightly but reduces the chances of writing to a bad sector.

### **Super**

When Super is selected, Back-It 4 does a byte-by-byte comparison of the data as it is read and written. If the data read does not match the data written, Back-It 4 marks that sector as bad and moves to the next sector. Super mode takes 5% to 10% longer than Normal mode, but provides a more thorough level of verification.

### **N/A**

If verification is not available for the device (e.g. tape), the indicator N/A will be displayed.

## **COMPRESSION**

The Compression parameter provides three levels of data compaction to reduce the size of your backup and to increase backup speed. Most files can be reduced during the backup process. The three available compression modes are:

### **Off**

When Compression is set to Off, data is stored without being compressed.

### **Normal**

With Compression set to Normal, Back-It 4 places primary emphasis on minimizing the time required to perform a backup and secondary emphasis on data compression.

### **Super**

With Compression set to Super, Back-It 4 places primary emphasis on data compression and secondary emphasis on minimizing the time required to perform a backup. For most AT-class computers running at 10 Mhz or more, this mode will usually provide the fastest backups because the computer can compress at least as fast if not faster than it can read and write to the disk.

Many factors affect the amount of compression that Back-It 4 is able to achieve and the amount of time required for a backup. Two of these are the hardware used and the types of files being backed-up. You may want to try Back-It 4's available options with your hardware.



Try Super compression first, as it will usually produce the smallest backups at a high speed. However, in some cases, Normal compression will produce faster backups. For example, you may prefer to use Normal compression if you are backing up large database files that are already compressed or using a slower machine (4.77MHz).

## **ERROR CORRECTION**

Back-It 4's Error Correction capabilities make it possible to reconstruct backup data that may have become corrupted during storage. It affects only floppy disks and not backups to other DOS devices or tape

### **Off**

When a backup is performed with the Error Correction set to Off, Back-It 4 saves data with no Error Correction logic. Thus, it may not be possible to retrieve all data if damage occurs to the destination media after the backup is completed.

### **Normal**

When Error Correction is set to Normal, Back-It 4 saves additional information that enables it to correct physically damaged sectors on the backup media. The additional Error Correction information increases the size of the backup by approximately 10%. For 360K diskettes, up to 80 sectors can be reconstructed. For other types of diskettes, up to 160 sectors can be reconstructed.

## **ARCHIVE FLAG**

The Archive Flag parameter permits you to select whether the archive flags are reset when files are backed up. The archive flag is a mark placed by the operating system in the directory entry of each file. It indicates that the file has just been created or modified and may need to be backed up. Archive flags are used to determine which files to include in a partial (modified) backup performed between full backups.

### **Reset**

When Reset is selected, Back-It 4 clears the archive flag from each selected file immediately after all files have been successfully backed up. Files with reset archive flags will not be included in the next partial backup unless they are modified again.



## **Don't Reset**

When Don't Reset is selected, Back-It 4 does not change the archive flags. In general, you would not select Don't Reset unless:

You want to leave your disk unchanged after the backup.

You want to make more than one copy of the same backup.

You want to make an additional modified backup.

## **OVERWRITE**

The Overwrite parameter permits you to select whether a prompt will be displayed indicating that files already exist on the destination media.

### **No**

When No is selected, Back-It 4 will display a warning message if it finds any files on the destination floppy. You may then examine the files to determine whether you want them overwritten. When backing up to a DOS device, Back-It 4 will include the new backup with any files already existing on the drive.

### **Yes**

When Yes is selected, Back-It 4 automatically overwrites existing files without interrupting the backup. However, if diskettes are being used, Back-It 4 will not overwrite files that are part of the current backup set.

## **FORCE ESTIMATE**

The Force Estimate parameter allows you to select whether an estimate of the number of files and bytes to be backed up, as well as the number of diskettes required, will be displayed in the Backup Progress screen as the backup occurs.

At this point, you can use the ARROW keys to move to another option on the Define Backup screen. To run the backup, press F2.

If you want to save the current backup parameters as your default, use the Save Current Configuration option under Configure at the Main Menu.



# BACKUP MANAGER

The Backup Manager allows you to set up and run frequently-repeated backups. These backup definitions are called "Presets."

The Backup Manager displays a list of existing Presets and their descriptions. Preset names and descriptions help you remember exactly what each backup does. Back-It 4 allows you to add, delete, or edit up to 50 preset names. Two presets are included with your software. One, called "FULL", will perform a backup of all files on drive C:. Another, called "MODIFIED", will backup all files on drive C: that are new or have been modified since the last backup.

The Backup Manager also allows you to schedule backup presets. You can specify the type of backup to run each day of the week and the time to start the backup.

The Backup Manager has five commands on its menu line:

- Backup (run the selected Preset).
- Edit an existing Preset.
- Schedule a Preset for automatic weekly/daily backups.
- Add a new Preset.
- Delete a Preset.

The Backup Manager keeps a history list for each Preset. The list shows up to 10 previous dates on which full and modified backups were performed.

A 'Preset' is a pre-defined set of backup instructions and parameters. These include the following types of information:

- a name and description for the saved settings
- the source (the volumes and directories to be backed up)
- the destination (where to store the backed up information)
- the types of files selected for the backup (by backup type, by name, and by date range)
- other parameters that control the backup process



## **ADD**

The Add command allows you to create a new Preset backup definition. The new preset will be added to the preset list at the position of the cursor when the Add command is selected.

There are three ways to select the Add command:

Use the ARROW keys to highlight Add on the command line and press ENTER

- or -

Press A

- or -

Press the INS key.

The Define Backup screen will display so you can make any desired changes to the backup parameters.

To exit this screen and add the preset to the Backup Manager, press ESC. The system asks, "Do you want to add this preset? (Y/N)." If you press Y, this set of parameters will be saved in the Backup Manager screen under the preset name you entered. If you have not entered a preset name the system will prompt you for one.

If you press N, you will be returned to the Backup Manager screen.

A backup preset can be run either from a DOS batch file or through the Schedule option.

## **SCHEDULE**

The Schedule command allows you to select the day of week and time of day that a backup preset will run. This command includes these aids in scheduling backups:

The number of minutes of warning given users when it is time to perform a backup.

The time to start each backup.

A weekly calendar to indicate the type of backup (if any) to be performed each day of the week.



The **Schedule** options take effect for the backup preset that is currently highlighted. Use the UP and DOWN keys to highlight the preset to be scheduled. To access the **Schedule** options, either:

Use the ARROW keys to highlight Schedule on the command line at the top of the screen and press ENTER

- or -

Press S.

This gives you access to the Scheduler.

*IMPORTANT! In order for Back-It 4 to automatically start backups, you must first install the BKSCHEM program by using BKSETUP, or make sure that BKSCHEM is included in your AUTOEXEC.BAT file. You must ensure that your computer's internal clock is set to the correct date and time (see your DOS manual).*

### **START BACKUP AT**

The Start Backup At option of the Scheduler allows you to set the time for the backup to begin. Enter the hours and minutes separated by a colon (:) and then the letter A for a.m. or P for p.m. (i.e. 2:30P).

*NOTE: Midnight is entered as 12:00A. If you enter all zeros (00:00), the scheduler will interpret it as "N/A" (Not Applicable) and will not automatically run the preset.*

After setting the time, press TAB to move to the Timeout option box, or press ESC to return to the Backup Manager screen.

### **TIMEOUT (min)**

If you are using another program when it is time to perform a scheduled backup, Back-It 4 will play the Westminster Chimes tune once every minute to remind you to back up your system. The Timeout (min) option of the Scheduler allows you to set the number of minutes that Back-It 4 will continue to remind you. After the designated amount of time has expired, if you have not exited your current program, Back-It 4 will stop reminding you to exit and the scheduled preset is canceled.

If Timeout is set to 0 (zero, the system default), music will remind you at one minute intervals until you exit to DOS, at which point Back-It 4 will run the scheduled backup.



If you are running a program that, when you exit to DOS, returns you to a drive other than the drive the preset is looking for, you will get an error message and the preset will not run. Change the drive to the correct directory and then run Back-It4, and the preset will begin. For example, if the DOS prompt was at the A: drive, you would perform the following steps:

1.Type **C:**

2.Press **ENTER**

3.Type **BK4**

4.Press **ENTER**

## CALENDAR

The Calendar option of the Scheduler displays a one-week calendar. Backup options are specified in the boxes below each day of the week. Type F under each day of the week that a full backup should be performed and M under each day of the week that a modified backup should be performed. Use the SPACE key to Leave the selection blank if no backups are needed for that day.

Press ESC to exit the Calendar field and return to the Backup Manager screen.

The Full and Modified selections in the Scheduler will always override the Modified Only? option in the Define Backup screen when the Scheduler runs a preset.

## BACKUP

The Backup command runs the highlighted backup preset. There are two ways to select the Backup command:

Use the ARROW keys to highlight Backup on the command line at the top of the screen and press ENTER

- or -

Press **B**.

This starts the backup and displays the Backup Progress Screen.



Back-It 4 displays the following information during the backup process:

Backup media  
Parameters  
Status

## **BACKUP MEDIA**

The backup media information displayed varies according to the media used. When backing up to floppies, Back-It 4 displays the current floppy drive, disk number, track number, and the number of bad tracks encountered.

When backing up to a Tape device, Back-It 4 displays the current block number and the number of bad blocks detected.

When backing up to a DOS Device, Back-It 4 only displays the path name.

## **PARAMETERS**

The backup parameter settings are displayed for reference during the backup.

## **STATUS**

Information is displayed showing the progress of the backup. At the top of the status window, the directory being backed up is displayed. The left portion of the window lists each file as it is backed up. In the middle of the window, status is given in terms of the total number of bytes and files backed up as well as elapsed time.

The moving squares in the lower right corner of the screen are a visual indication that the backup is proceeding.

## **FLOPPY DISK SAVER**

When Back-It 4 requests a new disk, if a new disk is not inserted within 30 seconds, a message is displayed and the floppy drive motor is turned off. When you see this message, press any key to reactivate the drive prior to removing the diskette. You will then be prompted to insert the next diskette.



## **EDIT**

The Edit command modifies an existing backup preset definition.

There are two ways to select the Edit command:

Use the ARROW keys to highlight Edit on the command line at the top of the screen and press ENTER (after highlighting the desired preset name)

- or -

Press E.

The Define Backup screen appears.

## **DELETE**

The Delete command removes an obsolete Preset.

There are three ways to select the Delete command:

Use the ARROW keys to highlight Delete on the command line at the top of the screen and press ENTER (after highlighting the desired preset name)

- or -

Press D

- or -

Press the DEL key.

The system asks you, "Delete highlighted preset? (Y/N)." If you press Y, the preset is deleted. If you press N, you will be returned to the Backup Manager screen.

## **DIRECT BACKUP**

A Direct Backup is a one-time, custom backup. Some features of the Backup Manager are not available for a direct backup, such as saved backup settings, creation of a history list, and scheduling. A Direct Backup is best used in a situation where these features are not necessary; it is a quick way to create and run a backup that will not be performed on an on-going basis.

There are two ways to select a Direct Backup from the Main Menu:

Highlight Direct Backup using the ARROW keys and press ENTER

- or -

Press D.



This takes you directly to the Define Backup screen which looks and works the same as the Backup Manager Define Backup screen, except that during a direct (one-time) backup, backup settings, history lists, and scheduling information are not saved.

Once the Direct Backup has been defined, press F2 and the backup process will start.

## RESTORE

The Restore command on the Back-It 4 main menu displays three restore functions:

- Direct Restore From Backup Set for restoring files from a backup set.

- Report Manager for Report Files for managing the backup report files created by Back-It 4.

- Generate Report From Backup Set for creating a backup report from a backup set listing the names of files included on each diskette or tape.

There are two ways to select a function from the Restore pull-down menu:

- Highlight the desired function using the ARROW keys and press ENTER

- or -

- Press the first letter of the function name.

## DIRECT RESTORE FROM BACKUP SET

The Direct Restore From Backup Set command retrieves backed-up files. Back-It 4 creates a backup set each time a backup is made. The backup set consists of the file(s) created at the time of the backup and includes all the information needed to restore the files preserved by the backup.



To select Direct Restore From Backup Set:

Use the ARROW keys to highlight the desired option and press ENTER

- or -

Press D, the first letter of the option.

When selected, this function displays the Source window.

## **SOURCE**

The Source option allows you to specify from which device to retrieve the information. The current configuration is displayed in the window.

To change the source for the restore, use the ARROW keys to highlight the appropriate device. If the configuration of the device is incorrect, press SPACE to edit the configuration.

When the desired device is highlighted, press ENTER. The system immediately begins to read the appropriate drive for the control information needed and displays the Restore Options screen.

## **Tape Restore**

If you are restoring files from tape, you will be requested to confirm if the backup set is correct. After the tape has been positioned to the front of the backup set, the message:

**Is this the Set? (Yes/Next/Change)**

will be displayed along with information about the name and date of the backup set. Press Y to restore this set, N to proceed without restoring to the next backup set on the tape, or C to change to a different tape.

## **RESTORE OPTIONS**

Before the restore actually begins (and at any time during the restore), you can change various restore options. Use SPACE or ENTER to modify a highlighted field.

## **DESTINATION**

The Destination box selects where to put the files being restored. This is useful if your directory structure has changed since the backup was made or if you want to restore the files into a separate area and look through them before transferring them into your current work area.



The Destination option displays the volume and DOS path to be used as the root for the restored files. The default is the same path from which the files were originally backed up. You can change it to a different path by typing a different path designation. With Destination highlighted, press ENTER to edit the field. Make any necessary changes and press ENTER again to continue.

## **OPTIONS**

The Destination Options allow you to choose whether to restore files into their original directory structure or to restore all files into one directory. Press SPACE to toggle the two options, Use Destination as Root and Don't Maintain Structure.

### **USE DESTINATION AS ROOT**

When set to Use Destination as Root, files are restored into their original directory structure. This will be indicated by a "+" (plus) symbol, which will appear on the destination line on the Restore Progress screen.

### **DON'T MAINTAIN STRUCTURE**

When set to Don't Maintain Structure, all files are restored directly into the destination directory. Previous directory structure is not retained. This will be indicated by a "-" (minus) symbol on the destination line on the Restore Progress Screen.

## **FILE/DIRECTORIES**

The Files/Directories box enables you to specify which directories and files to restore from the backup set. Press ENTER to display the Source/Volumes window, making it possible to tag drives and directories to be restored.

## **VOLUMES/DIRECTORIES**

The Volumes/Directories option displays the directory map that existed when you created the backup. Use the same procedure for tagging the volumes and directories to restore from the backup. Directories not backed up cannot be tagged for restore.

## **FILESPECS**

The Filespecs option enables you to list specific files or file specifications to include or exclude during the restore operation. However, the program will need to scan all disks in the backup set looking for more files.



With either Include or Exclude Files specs highlighted, press ENTER to edit the specifications list. The editing features are the same as those described under Files specs in the Backup section of this manual.

## **OTHER OPTIONS**

Other Options enables you to customize certain aspects of the restore process. These options are similar to the backup parameters.

## **OVERWRITE FILES**

The Overwrite Files option allows you to choose whether to overwrite files that already exist on the destination media. After highlighting Overwrite Files, press SPACE to toggle between the three options.

### **NEVER**

When set to Never, Back-It 4 will not overwrite any file that already exists on the destination media.

### **OLDER FILES ONLY**

When set to Older Files Only, Back-It 4 automatically overwrites files of the same name if the file to be restored is newer than the existing file.

### **ALL FILES**

When set to All Files, Back-It 4 automatically overwrites all files of the same name, even if the files being restored are older than the existing files.

## **PROMPTING LEVEL**

The Prompting Level option allows you to manually accept or reject each file, directory, or volume before it is restored. After highlighting Prompting Level, press SPACE to toggle between the four options.

### **PROMPT FOR EACH FILE**

When you select Prompt for Each File, Back-It 4 asks you to confirm each file from the backup set before it is restored.

### **PROMPT FOR EACH DIRECTORY**

When you select Prompt for Each Directory, Back-It 4 asks you to confirm each directory before it is restored. Once you have accepted a directory, individual files are restored without further confirmation.



## **PROMPT FOR EACH VOLUME**

When you select Prompt for Each Volume, Back-It 4 asks you to confirm each volume before it is restored. Once you have accepted a volume, directories and files are restored without further confirmation.

When restoring a backup set that includes multiple volumes to be redirected to new destinations, the "Prompting Level" parameter will automatically default to "Prompt for each Volume".

## **NO PROMPTING**

When you select No Prompting, all files are automatically restored from the backup set without any confirmation on your part.

When restoring a backup set that includes multiple volumes that will be redirected to new destinations, the Prompting level parameter will automatically default to Prompt for each Volume.

## **ARCHIVE FLAG**

The Archive Flag option allows you to choose whether the archive status flag is to be reset for each restored file. After highlighting Archive Flag, press SPACE to toggle between the two options.

## **DON'T RESET ARCHIVE STATUS**

When you select Don't Reset Archive Status, the "archive flag" for each restored file will not be reset.

## **RESET ARCHIVE STATUS**

When you select Reset Archive Status for Each File, the "archive flag" for each restored file will be reset. This lets Back-It 4 know that these newly restored files do not need to be selected for the next modified backup.

## **VERIFICATION**

The Verification option provides confirmation of the integrity between the information being read and written. After highlighting Verification, press SPACE to toggle between the two options.

## **VERIFY ALL RESTORED FILES**

When set to Verify All Restored Files, Back-It 4 compares each restored file with the version on the backup to assure accurate restoration.



## NONE

When set to None, no verification is done.

When all restore options are set, press F2 to begin the restoration. The Restore Progress screen is now displayed, providing information about the backup in the source device.

The upper left corner provides media information about the source device. The upper right corner shows the parameter settings of the backup being restored. A message box will appear in the middle of the screen reporting the status of the restore and prompting you for media changes as needed.

The bottom third of the Restore Progress Screen displays restore activity. The top line of the box shows the destination path for the files being restored. The left side of the box displays each file name as it is restored. The center of the box shows statistics for the number of bytes and files estimated and completed, as well as the elapsed time. The moving squares in the lower right corner of the screen are a visual indication that the restore is proceeding.

Press F2 at any time to interrupt the restore and display the Restore Options screen. After making any necessary option changes, press F2 and the restore will continue.

If you are restoring a backup set that includes multiple volumes and you need to change the restore destination, Back-It 4 will automatically prompt you for each volume.

To redirect subsequent volumes each to a new or the same destination, press F2 when the system prompts you with the message, "Restore this volume? (Y/N)." This will display the Restore Options screen and permit you to change the current Destination. When your changes are completed, press F2 again to resume the restore.

As each file is restored, Back-It 4 will place one of the following characters to the left of the file name:

- \* (asterisk) - the file was successfully restored.

- (o) - the file is older than the one already on the hard drive and was not restored.

- (e) - this file already exists.



(s) - the file was skipped. If the file has become damaged, Error Correction will attempt to recover it. However, there are times when Back-It 4 cannot recover the entire file. In this case you will be asked if you want to Keep the good portion of the file that Back-It 4 recovered or Skip the file completely, in which case it is not restored.

(k) - the file was kept (see previous paragraph).

## REPORT MANAGER FOR REPORT FILES

When all files are successfully restored, a message will appear saying "Disk Successfully Restored! Press any key to return to the main menu."

Gazelle's Report Manager provides a simple, easy-to-use method for managing the reports created during the backup process. At the conclusion of every backup, Back-It 4 creates a report file that records information relating to that backup as well as the names of the files included in the backup. The report file includes the following information:

- Date and time of backup

- Type of backup (whether full or modified)

- Backup media used (Floppies, Tape, DOS Device)

- Preset name

- Description

- Error correction status

- Verification status

- Compression status

- Volume name

The backup report then shows each file in the backup listing the file's directory path, the disk number that it is recorded on, the file name and extension, the size in bytes, the file's date and time, as well as its attributes.

## BKOUT

The BKOUT DOS environment variable contains the path where the report files are stored on your hard disk. If BKOUT is not defined, the path contained in the BACKIT DOS environment variable will be used.



## **RUNNING REPORT MANAGER**

Report Manager can be run either from within Back-It 4 or from the DOS prompt.

To run Report Manager from within Back-It 4:

1. Select Restore from the Back-It 4 Main Menu. You can either:  
Highlight Restore with the ARROW keys and press ENTER

- or -

Press R.

2. From the list of functions displayed in the Restore pull-down menu, select Report Manager For Report Files and press ENTER (or press R).

To run Report Manager from the DOS prompt:

1. Type CD\BACKIT4 and press ENTER (this places the cursor in the correct subdirectory).
2. Type RPTMANG.EXE and press ENTER.

## **MAIN MENU**

Report Manager's menu line of commands is located at the top of the screen.

There are two ways to choose a command from the menu line:

Move the cursor with the LEFT or RIGHT ARROW key until it highlights the desired command and then press ENTER

- or -

Press the first letter of the desired command.



## **FIND HISTORY**

The Find History command searches all backup reports and displays those reports that contain any files matching the search file string. This can be very useful when you need to locate a file older than the one on your most recent backup.

Select Find History by highlighting the option with the ARROW keys and then press ENTER, or press **F**.

The system now asks you to enter the file name you would like to find. Enter the name of a specific file, or, for a group of files, use the DOS wildcards. Press ENTER and Report Manager begins searching the backup reports for the file(s).

## **VIEW BACKUP HISTORY**

Report Manager displays a screen showing the first backup report that contains a file matching your search string.

While in the View Backup History screen, you have three functions available to you:

- To view the contents of the report file currently highlighted, press **V**.

- To continue the search and find another report that contains files matching your search, press **C** or SPACE.

- To quit and return to the main menu, press **Q** or ESC.

If you press V to view the backup history file, the screen will display the actual report and highlight the first file that matches your search string.

## **REPORT FILE VIEW**

While in the Report File View screen, you have four functions available to you:

- To scroll through the report, use the ARROW keys.

- To search for another file, press **F**.

- To continue the search and find another occurrence of your file string, press **A** or SPACE.

- To quit and return to the View Backup History screen, press **Q** or ESC.



If Report Manager is unable to find any additional occurrences of the file you are searching for, it will display a window showing the file you entered and that there were no more found.

## **VIEW**

The View command will display the contents of the highlighted backup report. Select the backup report you would like to examine by moving the highlight bar with the ARROW keys. Then, select View by highlighting the option with the ARROW keys and press ENTER, or press V.

## **COPY**

The Copy command will copy a specific backup report to a floppy disk in either drive A: or B:. To copy a backup report, first highlight the desired report with the ARROW keys. Then, select Copy by highlighting that option with the ARROW control keys and press ENTER, or press C.

The Select Drive window will appear on the screen asking you to select either drive A: or B:. Place a floppy disk in either drive A: or B: and enter the drive letter. A confirm prompt appears, asking you to press Y or N to continue. If you press Y, Report Manager will copy the report from your hard drive to the floppy. If you press N (or ENTER, the prompt default), you are returned to the Report Manager screen.

## **ERASE**

The Erase command will delete a highlighted backup report or several tagged reports from your hard drive. To erase a single report, first highlight the desired report with the ARROW keys. Then, select Erase by highlighting that option with the ARROW keys and press ENTER, or press E. The system will display a confirmation prompt asking you to press Y to continue or N to cancel.

## **TAG**

To erase more than one backup report at a time, the files to be erased must first be tagged. This is accomplished by highlighting the file and pressing SPACE or T. Once all files to be erased are tagged, highlight Erase with the ARROW keys and press ENTER, or E. The system will display a confirmation window asking you to press Y to continue or N to cancel. Once Y is pressed, all tagged backup reports will be deleted.



## DIR

The Directory command will display the directory of the floppy disk in either drive A: or B:. To accomplish this, highlight Dir with the ARROW keys and press ENTER, or D. The system will display a selection window asking you to enter the drive letter desired. After entering A or B, the system will scan the disk in the drive and display a directory of the files on that disk in the bottom screen window.

## QUIT

To exit Report Manager and return to Back-It 4 (or the DOS prompt), highlight the Quit option with the ARROW keys and press ENTER, or Q.

## GENERATE REPORT FROM BACKUP SET

The Generate Report From Backup Set option in the Restore menu recreates a backup report file from a Back-It 4 backup diskette or from a backup stored on a DOS device.

To generate a new backup report from an existing Back-It 4 backup, highlight Generate Report From Backup Set with the ARROW keys and press ENTER, or G. The system will display the Source For The Report window.

Highlight the desired source with the ARROW keys and press ENTER.

*NOTE: If you are generating a report from a floppy diskette, you will need to have the diskette already in the appropriate drive as Back-It 4 immediately begins to read the drive and produce the report.*

Back-It 4 will create a complete backup report for the backup selected and place that report in the Back-It 4 subdirectory on your hard disk.

If you are generating a report from tape, you will be requested to confirm if each set is the correct set.



## CONFIGURE

The Configure command on the Back-It 4 main menu allows you to modify your system configuration. You may:

- Configure up to four floppy drives.
- Configure tape devices.
- Configure one DOS device.
- Change the color settings.
- Change the beep settings.
- Set the DMA compatibility.
- Set the compatibility mode.
- Change the directory map statistics display.
- Save the current configuration.

Configuring your system correctly is vital. Proper configuration assures that Back-It 4 works correctly with your system.

To select the Configure command, highlight Configure on the command line and press ENTER, or C. A pull-down menu displays the following configuration functions: Floppy, Tape, DOS Device, Color Setup, Other Settings, and Save Current Configuration. Highlight the function you desire and press ENTER, or press the first letter of the desired function.

## FLOPPY

The Floppy function of the Configure command enables you to configure Back-It 4 to support from one to four floppy disk drives. When Floppy is selected, a screen displaying floppy drive options appears. Back-It4 requests the following information:

- Whether to use each of four possible drives.
- Specify the drive type.
- Specify the format size.

## USE

The Use option of the Floppy function allows you to indicate which floppy drive(s) on your system should be used to backup data to floppy disks. Back-It 4 can use up to four floppy drives. The drives are designated as A:, B:, 3rd, and 4th.



*NOTE: If you have a floppy controller that is not 100% compatible, you may need to access it as a DOS device.*

To toggle the Use option, highlight the Use box for the selected drive and press SPACE to toggle the configuration options. You may select either YES or NO.

### **Yes**

When the Use option is set to YES for a particular drive, Back-It4 writes to that drive during the backup. If you use more than one floppy drive for a backup, you can change diskettes in one drive while Back-It 4 is writing to the other drive (as long as both drives are of the same format type). This should speed up the backup process.

### **No**

When the Use option is set to NO for a particular drive, Back-It4 will not write to that drive during the backup. Select NO if the drive does not exist on your system or if you simply do not want to use an existing drive.

## **TYPE**

The Type option of the Floppy function allows you to specify the type of drive used in the backup. To configure the drive type, highlight the Type box for a selected drive and press SPACE to toggle the configuration options. You may select any of four drive types: 360K, 720K, 1.2MB, and 1.44MB.

### **360K**

When the Type option is set to 360K, Back-It 4 is configured to write to a 5.25 inch floppy drive that uses double-sided, double-density diskettes capable of storing up to 360K bytes of information.

### **720K**

When the Type option is set to 720K, Back-It 4 is configured to write to a floppy drive that uses 3.5 inch diskettes (mini-floppies) capable of storing up to 720K bytes of information.

### **1.2MB**

When the Type option is set to 1.2MB, Back-It 4 is configured to write to a floppy drive that uses 5.25 inch high-density diskettes capable of storing up to 1.2MB bytes of information.



### **1.44MB**

When the Type option is set to 1.44MB, Back-It 4 is configured to write to a floppy drive that uses 3.5 inch high-density diskettes (mini-floppies) capable of storing up to 1.44 MB bytes of information.

## **FORMAT**

The Format option of the Floppy function allows you to specify the format size for the drive(s) that you have selected. To configure the Format option, highlight the Format box for a selected drive with the ARROW keys and press SPACE (to toggle the configuration options). Options include 360K, 720K, 1.2MB, and 1.44MB.

During installation, Back-It 4 sets the drive format equal to the drive type. That is, a 1.2MB drive will default to a 1.2MB format, even though you can set that drive to format a 360K disk.

### **360K**

When you set the Type option to 360K, Back-It 4 automatically selects a 360K format.

### **720K**

When you set the Type option to 720K, Back-It 4 automatically selects a 720K format.

### **1.2MB**

When you set the Type option to 1.2MB, Back-It4 automatically selects a 1.2MB format. However, you may also select a 360K format.

### **1.44MB**

When you set the Type option to 1.44MB, Back-It 4 automatically selects a 1.44MB format. However, you may also select a 720K format.

When you have finished configuring Back-It 4 to work with your floppy drive(s), press ENTER to return to the main command screen.

## **TAPE**

The **Tape** function of the **Configure** command allows you to configure Back-It 4 to support up to four tape drives. When Tape is selected, a screen displaying a list of supported tape device drivers appears. To select a tape driver, use the ARROW keys and press ENTER.



## DOS DEVICE

The DOS Device function of the Configure command is used to specify the path name for a DOS device used as the backup destination. A DOS device is defined as any location that can be referenced by a DOS path name (e.g., another hard disk on your system, a removable disk, a cartridge, a Bernoulli Box, a floppy drive, or a tape drive that is supported as a standard DOS device).

Initially, the current DOS path is displayed. To change the path setting for a DOS device, select the DOS Device function with the ARROW keys and press ENTER, or press D.

Edit the path name using the BACKSPACE and ARROW keys. When you finish, press ENTER to return to the main command screen. All backups to a DOS device must be done with pre-formatted media.

## COLOR SETUP

The Color Setup function of the Configure command allows you to customize your screen colors. Highlight Color Setup and press ENTER (or press C) and the Color Configuration screen is displayed.

To change the screen colors, press the blinking color selection keys displayed in the color editing box. To select Standard Monochrome, press M. To select Standard Color, press C. Press the numbers 1 - 5 to change the colors for the cursor (highlight) bar, lines, headings, data areas, and background.

As you press one of the numbers (1-5) the color will "rotate" ahead (change to the next available color). You can change the rotation direction by pressing the UP or DOWN keys. The arrow after the DIRECTION: prompt will show you in which direction the colors will change.

Please be aware that certain color combinations may make some screen text unreadable.

After your adjustments are complete, press ENTER and your selections will be saved and you will be returned to the Configure menu. Press ESC to ignore any changes and return to the Configure menu.



## OTHER SETTINGS

The Other Settings function of the Configure command allows you to configure three of Back-It 4's changeable options:

- Beep control
- DMA setting
- Compatibility mode
- Directory Map

To change these settings, highlight the Other Settings function and press ENTER, or press O. Back-It 4 displays the options and their current settings.

### BEEP SETTING

The Beep Setting option modifies the use of warning beeps in Back-It 4. To change the beep setting, highlight Beep Setting and press SPACE until the setting of your choice is displayed. Your choices are Off, Normal, or Quiet.

#### OFF

When Off is selected, no beep will alert you to an error or other condition requiring your attention.

#### NORMAL

When Normal is selected, you will hear a regular beep when Back-It 4 requires your attention.

#### QUIET

When Quiet is selected, you will hear a soft beep when Back-It4 requires your attention.

When you have selected the beep setting you desire, press DOWN to move to the next option, or press ESC to return to the main screen.

### DMA CAPABILITY

The DMA (Direct Memory Access) Capability option allows you to set the speed at which your computer transfers data. If your DMA chip functions fully at high-speeds, Back-It4 can write data to your floppy drive at the optimal speed. A test is performed by Back-It4 during the software installation routine. When the test is completed, the software will automatically configure Back-It4 to the DMA setting that is best for



your machine. If you need to run the DMA test after installing Back-It, merely run the BKSETUP.EXE program on your Back-It4 program diskette and select the DMATEST option.

If you need to change the current DMA Capability setting, highlight DMA Capability and press SPACE to toggle between the two options, Normal and Fast.

### **NORMAL**

Normal speed will work with all standard floppy drives. Most external drives are not standard.

### **FAST**

Fast speed will work with drives that have dual-channel capability (see above).

When you have selected the desired DMA setting, press the UP or DOWN arrow to move to another option, or press ESC to return to the main screen.

## **COMPATIBILITY MODE**

In order to achieve high backup speeds, Back-It 4 performs many low-level hardware specific functions. These functions involve the system ROM BIOS, the DMA channels, the hard-drive controller, and the floppy drive controller. A few "IBM compatible computer systems" are not 100% compatible at this low hardware level. This type of hardware incompatibility usually manifests itself through error messages from Back-It4 (such as Critical Error Handler). The Compatibility Mode option allows you to handle such situations smoothly. To change the Compatibility Mode, highlight Compatibility Mode and press SPACE until the setting of your choice is displayed on the screen. You may set the Compatibility Mode at either Normal or Turbo.

### **NORMAL**

Normal mode allows Back-It 4 to operate normally and provide high-speed, reliable backups in spite of minor incompatibilities. You may see a small decrease in backup speed in comparison to 100% compatible systems.

### **TURBO**

Turbo mode enables 100% compatible systems to function at optimum speed.



## DIRECTORY MAP

The Directory Map option allows you to select the type of directory map to be displayed when selecting directories for backup. To change the Directory Map, highlight Directory Map and press SPACE until the setting of your choice is displayed on the screen. The two options are: Friendly map or Quicker map.

### FRIENDLY

The Friendly map shows more data on the directory screen than the Quicker map. This option dynamically shows the number of files and bytes in the directories being tagged for backup as well as the total number of files and bytes in all of the subdirectories tagged for backup. In order to do this, the map is automatically refreshed by re-scanning the hard disk any time a change is made to any of the backup specifications. The Friendly map also displays directory tagging instructions.

On very large partitions or network drives, the Friendly scan can require two minutes or more to complete.

### QUICKER

The Quicker map does not show byte and file statistics and therefore does not need to dynamically re-scan the hard disk for the directory and file information. When using this option, the backup files and bytes statistics may be viewed by using the F9 - Estimate option from the main backup screen.

## CONFIGURATION DIRECTORY

The Configuration Directory message at the bottom of the Other Configurable Settings window displays the directory path Back-It 4 will use to access and store its configuration files and backup definitions. This is the path that is defined by the BACKIT DOS environment variable.

To change this setting, use the DOS SET command as explained in your DOS manual. For example, if you want Back-It 4 to always save backup reports and configuration information in the C:\REPORTS directory, you would need to place the following line in your AUTOEXEC.BAT file:

**SET BACKIT = C:\REPORTS**

*Note: BKSETUP will automatically do this for you.*



## SAVE CURRENT CONFIGURATION

The Save Current Configuration function of the Configure command stores your current configuration settings (including all parameters defined in the Direct Backup, Define Backup screen) in a file called BK4.CFG. This file can be found in the configuration directory specified with the BACKIT environment variable. For more information on environment variables, consult your DOS manual.

To save the current configuration settings, either press S or highlight Save Current Configuration and press ENTER. Back-It4 automatically saves the configuration you have specified..



# APPENDIX A - BACKUP STRATEGIES

## Advantages of Back-It 4

Back-It 4 is 100% DOS compatible and includes the following features:

- Speed
- Flexibility
- Hardware Compatibility
- Reliability

Here are some suggestions that can help you get the most performance from Back-It 4:

When making backups to floppy diskettes, be sure to configure Back-It 4 to use all available floppy drives with the Configure - Floppies command sequence. Some waiting can be avoided if you replace a just-completed backup diskette with an empty one while Back-It4 is copying to another drive.

NOTE: Back-It4 will not allow you to mix format types.

Selecting automatic overwrite by setting the Overwrite parameter to YES will speed up the backup process since Back-It 4 will not pause to ask if you would like to overwrite existing files. When Overwrite is selected, however, be sure the diskettes you use for the backup contain data that can be overwritten or destroyed.

Performing partial backups can significantly reduce the time you spend doing backups. When a partial backup is performed, only files that have been modified since your last full backup will be backed up.

You may run a predefined backup by simply typing BK4 followed by the name of the backup preset. For example, if you wish to run a preset named FULL, type BK4 FULL and press ENTER. Back-It 4 will automatically load the backup preset, scan your hard disk to make sure that all directories are accounted for, and begin the backup process.

You may choose never to backup main application program files (since you own the original program diskettes). Use the Exclude Filespecs feature in the File Selections option of the Backup Manager to mark program files for exclusion. You may also place



main application programs in separate directories and exclude those directories from your backups (this will save both time and storage space).

## **BACKUP SAFETY RULES**

### **FLOPPY DISKETTES**

Use only high-quality diskettes (often referred to as “media”) for your backups. If you have high-density floppy drives, use only high-density diskettes. Back-It 4 is careful to check that each diskette is reliable. However, you increase the reliability of the backup when you use high-quality media.

### **HARDWARE**

Be sure that your hardware is fully operational. A backup program cannot operate effectively if the drive heads are worn, dirty, or out of alignment. Faulty disk controllers and other circuitry can also cause information to be written incorrectly to a tape. Gazelle Systems cannot be held responsible for poor backups caused by faulty hardware. The DMATEST option of the BKSETUP program should be used to test your system for compatibility with Back-It 4’s high-speed backups.

### **VERIFICATION**

Take advantage of Back-It 4’s verification capabilities when backing up to floppy diskettes. Verification provides media testing before data is written, producing a more reliable backup.

### **LABELING**

Clearly label all backup floppies and tapes, and clearly name backup DOS paths.

### **ERROR CORRECTION**

Always take advantage of the error-correction capabilities in Back-It 4. The verification procedures help prevent the writing of good data to bad spots on your backup media, but Back-It 4’s error correction code can actually correct and compensate for damage that occurs after the backup.



## RAM COMPATIBILITY (DISK CACHING)

While most RAM-resident software does not affect Back-It 4, disk-caching programs can cause slow backups.

*NOTE: The more memory available, the faster Back-It 4 will run.*

## BACKUP TYPES & ROTATION

There are two types of backups; the FULL and PARTIAL.

### FULL BACKUP

Because all the files on your disk will be backed up, a FULL backup requires more time and diskettes. A FULL backup of your files should be performed frequently (at least once a week, depending on your work volume).

### PARTIAL BACKUP

A PARTIAL backup saves time and diskettes. There are two applications for the partial backup:

**BACKING UP SPECIFIC FILES ONLY.** It may be desirable to limit the files that are backed up. For example, Back-It 4 allows you to specifically exclude files (i.e. COM and EXE files). Since these files generally do not change over time, Back-It 4 also gives you the flexibility to select files by date (e.g. all files created in the month of July).

**BACKING UP NEW AND MODIFIED FILES ONLY.** Augment a full backup by using the Modified Files Only option. Back-It 4 searches your hard disk for all the new files and existing files that have been changed (modified) since the last full backup; generally, only a small percentage of files on your disk are new or have been changed each week.

*IMPORTANT: DO NOT try to append to or use your FULL backup floppies for PARTIAL backup as this will destroy the FULL backup. Keep each backup set in separate groups. Only when backing up to a tape or DOS device is it possible to append PARTIAL backups to previous FULL backup.*



## Answers to Most-Asked Questions

### **Is Back-It 4 compatible with RAM-resident software?**

Most RAM-resident software does not affect Back-It 4, but disk-caching programs can cause slow backups.

*NOTE: The more memory available, the faster Back-It 4 will run.*

### **Can I use another hard disk to make back ups?**

Yes, you can backup to any mass storage device recognized by DOS, if you specify the correct destination using the DOS Device option. Be sure the target disk is properly formatted and you include the correct path name if backing up to a specific directory.

### **Can I restore files to a directory other than the default directory?**

Yes, this allows you to restore files without overwriting data currently residing on your hard disk. When your data is restored, the entire directory structure will be replicated with all directories branching off from the specified directory.

*NOTE: When a new root directory is specified using the restore option, the directory structure and directory names of the original backup will remain unchanged.*

### **What does it mean when Back-It 4 gives me a "Path Not Found" message?**

This can occur if a restore is attempted to a wrong path, or the subdirectory or drive doesn't exist.

### **What is a Fatal Error?**

A Fatal Error is a condition from which the system usually cannot recover. Back-It 4 attempts to recover and continue. A Fatal Error is rare under normal operation of Back-It 4 since all sectors on your disk are verified and locked out if bad. If the Fatal Error message is displayed just as you finish writing to the first disk of a backup, check to see that you floppy drives are configured properly. For example, this error will occur if you try to create a 1.2MB format using a 360K drive.

If you have any questions, take advantage of the technical support provided with your purchase of Back-It 4.



## Restarting an Aborted Backup

If a diskette problem caused a Fatal Error and the backup was halted, we recommend that you start the backup over and discard the bad diskette. Any aborted backup must be restarted from the beginning.

## Hidden/System Files

Back-It 4 will not backup the two DOS system files that are hidden in your root directory. These files should only be restored using the FORMAT or SYS commands from DOS.

## Copy Protection

Back-It 4 is not intended to back up programs that are installed on a hard disk using a copy protection scheme. To reinstall program files that are copy protected, you must use the distribution disks sent with the product.

## Changing DOS Versions

Can I use Back-It 4 to help upgrade my DOS version? Yes, Back-It 4 has built-in safety features to prevent hidden old DOS files from overwriting the new DOS files.

*NOTE: In many cases, it is not necessary to backup your hard disk to change DOS versions. The SYS command in DOS can upgrade the DOS version on most hard disks in just a few seconds and without any problems. If you decide to reformat your disk, always follow the instructions that accompany your DOS update.*

If you use Back-It 4 to help you upgrade your DOS version, remember that it will not backup the two hidden DOS system files. Back-It 4 will, however, backup the COMMAND.COM file. When you restore your hard disk with Back-It 4, you should exclude the COMMAND.COM file so that it will not overwrite the one created by your new version of DOS.

In addition, if you keep all your DOS files in a special directory (such as C:\DOS), you may want to exclude this directory from restoration. This will ensure that the DOS files on your hard disk are the correct, upgraded files.



## Backup Strategies

In order to minimize data loss and computer downtime in the event of a hard-disk crash, we recommend that you follow a few simple rules when backing up your data.

First, do a full backup of your hard-disk, and make sure that the option to reset the Archive Flag is turned on. Put this backup in a safe place. From that point, you may save considerable time and disks by doing partial backups rather than backing up your entire system every time. When you select the Modified backup type, Back-It 4 will backup only those files which have been modified or created since the last Full backup.

**A NOTE FOR DISKETTE BACKUPS:** Don't destroy your Full backup by overwriting it with your Modified backup! When you perform a Modified backup, use a different set of diskettes. Each Full backup and its accompanying Modified backups constitute a backup set. Make sure that each partial backup you create never overwrites any other backup in the same backup set.

Maintain at least two backup sets, and rotate them, so that you will be prepared for a crash at any time. Restoring the latest backup set will update your system to its latest stable state.

## Hard Disk Compression

Back-It 4 may be used as a hard disk compression utility. You can greatly reduce the size of rarely used files and thus increase the capacity of your hard disk by compressing these files.

Compressing hard disk files:

1. Choose a directory to be compressed
2. Run Back-It 4 choosing Direct Backup. Use the directory as source and DOS device as destination. Select the path of the directory as something easy to remember.
3. After the backup is complete delete the files in the source directory. You must delete the compressed files to save space on your hard disk.



When you need one or more of the compressed files back, use Back-It 4's **Restore** function to both find the file (Report Manager) and decompress it (Direct Restore).

## Backup Set Quality

From time-to-time you may want to confirm the reliability and recoverability of a previously created backup set. The set may have been tampered with, set in a dangerous place (direct sunlight) or the backup media has aged. An efficient way to determine the quality of such a backup set is to use the **Generate Report from Backup Set** option in the **Restore** command. This option will read each file backed up, decompress it if necessary and report any errors found without actually replacing any files on your hard disk.

## APPENDIX B - Backup Checklist

1. FULL or PARTIAL backup?
2. Source volumes set correctly?
3. Backup destination configured properly?
4. Backup directories specified?
5. Include or Exclude file specifications needed?
6. Parameters set?
  - Reset Archive Flag
  - Error Correction
  - Overwrite
  - Compression
  - Force Estimate
7. Data verification specified?
  - Normal
  - Super
  - Off
8. Enough usable disks or tapes? (Back-It 4 estimates the minimum number of disks needed for the backup but cannot account for disks with different formats or with unusable sectors, etc. Have more disks available than the programs recommends).
9. If using a preset, have my needs changed since the last time the preset was used.



## APPENDIX C - BKUTIL

### Device Configuration

In order for Back-It 4 to use tape drives function, the host computer must be able to communicate properly with the device on which backups will be made. BKUTIL configures tape backup devices for your computer by creating device definitions. A device definition includes all the information Back-It 4 will require to communicate directly with the tape drive.

BKUTIL also includes tape utilities which allow you to:

- Format and verify.

- Analyze the surface.

- Show statistics for space used and available.

- Erase the data.

- Show a directory of backup sets.

### Running BKUTIL

To run BKUTIL, type **BKUTIL** at the DOS prompt and press ENTER. BKUTIL will place all of the files it creates in the path specified by the BACKIT DOS Environment Variable.

*NOTE: Until a device definition has been created as described below, BKUTIL will not allow you to access the "Utilities" or "Format" commands on the main menu.*

### Configuration

The first time it is run, BKUTIL automatically brings you into the Device Definition function of the Configure command. This makes it possible for you to create a unique device definition for each tape device you wish to use. BKUTIL will load a selected device driver and allow you to configure a definition customized to your specific hardware.

BKUTIL first displays a "SELECT" window showing all available tape drivers. Highlight the device driver for the tape device you need to configure and press ENTER.

A "CONFIGURE" window is displayed, containing the options required to create a valid device definition. The list of parameters displayed will vary depending upon the specific device driver. For example, if you



select the Colorado QIC 40 device driver configuration, the only option displayed will ask if an adapter card is being used. However, if you select the Wangtek QIC 80 device driver configuration, five parameters are displayed. These options allow you to configure such things as drive location, data transfer rate, IRQ interrupt number, etc.

*NOTE: For recent information on these parameters, refer to the TAPE.TXT file on the program disk.*

Use the ARROW keys to highlight the parameter you wish to change and press ENTER. A "SELECT" window, showing possible choices for that parameter, is displayed. Use the ARROW keys to highlight your choice and press ENTER. Follow this same procedure to complete the definition configuration.

After all choices have been made, save the new device definition by pressing F2, or press ESC to exit without saving the configuration changes. A "CONFIGURE NAME" window will appear in which you enter the name for this definition.

*NOTE: It is helpful to use a name that describes not only the type of device being configured but also its location (i.e., "MARK'S COLORADO QIC40 TAPE").*

Press ENTER and the definition is saved and you are returned to the BKUTIL command line.

Use this same procedure to create definitions for all available tape devices. Back-It 4 will not access a tape device if that device has not first been configured in this manner.

## **Select Definition**

Each time it is run after the initial device definitions have been created, BKUTIL will automatically invoke the Select Definition function. BKUTIL displays the "SELECT" window, showing all device definitions that are available. With a tape already in the drive, use the ARROW keys to select the appropriate device name and press ENTER.

After accessing the tape in the drive, BKUTIL will make all main menu commands available.



## Main Menu

The BKUTIL main menu contains four commands:

- Configure
- Utilities
- Format
- Quit

There are two ways to select a command from the menu:

Highlight the desired command using the ARROW keys and press ENTER.

- or -

Press the first letter of the command name.

## Configure

Four functions are displayed from the Configure pull-down menu.

Select Definition - allows you to select which device to access.

Create Definition - allows you to create a new device definition from the available device drivers.

Edit Definition - allows you to make changes to an existing definition.

Delete Definition - allows you to delete a definition that is no longer needed.

## Select Definition

Select Definition is automatically selected each time BKUTIL is run (if device definitions have already been created). See the Select Definition section at the beginning of this chapter for detailed information on this function.

## Create Definition

The Create Definition function is used to create a new device definition. Back-It 4 uses these definitions to load the correct device drivers and configure them to the host computer.



There are two ways to select the Create Definition function:

Use the ARROW keys to highlight Create Definition and press ENTER.

- or -

Press C.

See the Configuration section at the beginning of this Appendix for detailed information on this function.

## **Edit Definition**

The Edit Definition function enables you to change the configuration information for an existing device definition.

There are two ways to select this function:

Use the ARROW keys to highlight Edit Definition and press ENTER.

- or -

Press E.

A scroll window will appear showing all current device definitions. Use the ARROW keys to highlight the definition you wish to edit, and press ENTER.

When a device definition has been selected, the "CONFIGURE" window will appear. The list of displayed parameters will vary depending upon the specific device driver. These options allow you to configure such things as drive location, data transfer rate, IRQ interrupt number, etc. Refer to the documentation supplied with your tape drive if you have specific questions.

Use the ARROW keys to highlight the parameter you wish to change and press ENTER. A "SELECT" window, showing possible choices for that parameter, is displayed. Use the ARROW keys to highlight your choice and press ENTER. Follow this same procedure to make all necessary changes.

After all changes have been made, save the updated definition by pressing F2, or press ESC to exit without saving the configuration changes. A "CONFIGURE NAME" window will appear with the current device definition name. To save the definition with its existing name, press ENTER. To give the definition a new name, type the new name and press ENTER.



A complete list of device driver names and associated tape drives is listed in the TAPE.TXT file on the device diskette.

## **Delete Definition**

The Delete Definition function removes an existing device definition from your system.

There are two ways to select this function:

Use the ARROW keys to highlight Delete Definition and press ENTER.

- or -

Press D.

A window with a list of all the current device definitions will appear.

Use the ARROW keys to highlight the device definition you wish to delete. Press ENTER and the definition is deleted. Press ESC to return to the Device Configuration pull-down menu.

## **UTILITIES**

The Utilities command on the BKUTIL main menu provides the following functions:

Statistics - shows bytes available, used and unusable.

Erase - erases all data from the tape.

Security Overwrite - performs a security erase of all data on the tape (unrecoverable).

Directory of Backups - lists all backup sets.

Retension the Tape - provides uniform tension for the entire tape.

There are two ways to select a function from the Utilities pull-down menu:

Use the ARROW keys to highlight the desired function and press ENTER.

- or -

Press the first letter of the function.



## Statistics

With a tape cartridge in the drive, select Statistics and press ENTER. BKUTIL will read the tape's volume table and then display a "STATISTICS" screen showing the following:

- Bytes Available - number of unused bytes on the tape.
- Bytes Used - number of bytes used by data.
- Bytes Not Usable - number of bytes blocked out as unusable.

After viewing the "STATISTICS" screen press any key to return to the Utilities menu.

*NOTE: BKUTIL cannot immediately distinguish a formatted tape cartridge from an unformatted one. Attempting to read the statistics on a tape that has not been correctly formatted may produce unpredictable results. Also, statistics cannot be produced for a streaming tape drive.*

## Erase

The Erase function performs a "quick" erase of all data on the tape cartridge. It is referred to as a "quick" erase because the data is not actually deleted but merely rendered inaccessible.

Place the cartridge to be erased in the drive, select Erase from the Utilities pull-down menu, and press ENTER. A warning window will appear explaining that this option will erase the data from the tape. Press C to continue or ESC to quit.

## Security Overwrite

The Security Overwrite function performs a "security" erase of all data on the tape. In this case, BKUTIL will overwrite all data on the tape with zeros. This renders all data unrecoverable.

Place the tape to be erased in the drive, select Security Overwrite from the Utilities pull-down menu, and press ENTER. A warning window will appear explaining that this option will erase the data from the tape. Press C to continue or ESC to quit.

*NOTE: Some tape devices do not allow for a Security Overwrite option, but require the user to reformat the tape instead. If you are using one of these devices and select Security Overwrite, BKUTIL will refer you to the Format function.*



## Directory of Backups

The Directory of Backups function scans the tape and displays a list of all backup sets. It includes the following:

- Name of the backup preset
- Description of the named backup preset
- Date and Time the backup was performed
- Type of backup (Full or Modified)
- Compression level (Off, Normal, Super)
- Error Correction level (Off, Normal)

With a tape cartridge in the drive, select Directory of Backups and press ENTER. BKUTIL will read the Volume Table and then display a directory of all backup sets on the tape. Use the PGUP or PGDN keys to scroll through a multiple-screen directory list. Press ESC to return to the Utilities menu.

## Retension the Tape

Many tape devices have a tendency to increase the tape tension with each use. If these tapes are not periodically retensioned, they could stretch or break. The Retension the Tape function will provide uniform tension for the cartridge currently in the drive. See your tape device documentation for information about your specific drive.

Place a tape cartridge in the drive, select Retension the Tape from the Utilities pull-down menu, and press ENTER (you cannot select this option by pressing the first letter). A small window will appear stating that BKUTIL is accessing the tape. When the retension is complete, BKUTIL will return you to the Utilities menu.

*NOTE: The time needed to complete a tape retension is controlled by the particular device being used. However, most tape retensions can be completed in two minutes or less.*



# FORMAT

The Format command on the BKUTIL main menu provides the following functions:

Surface Analysis - analyzes the surface of the tape and marks out any blocks that are substandard.

Format/Verify - formats and verifies a new (or existing) tape.

There are two ways to select a function from the Utilities pull-down menu:

Use the ARROW keys to highlight the desired function and press ENTER.

- or -

Press the first letter of the function.

## Surface Analysis

The Surface Analysis function is provided as a way to verify that the tape surface is reliable. When a bad block is encountered, BKUTIL will mark it as unusable, ensuring that data will not be stored there in the future. Back-It 4 can restore the existing data, but will not write to the bad block in future backups.

To perform a tape analysis, select Surface Analysis and press ENTER. BKUTIL will first read the tape's volume header and display a "FORMAT CONFIGURE" window asking you to select the number of tracks to format. Press ENTER and the "SELECT" window appears, showing all available options.

You may either analyze the entire tape or select specific tracks from the list shown. Highlight your selection and press ENTER. Press F2 to begin the analysis.

BKUTIL displays a window showing statistics for the analysis, including Current Block and Time Elapsed. A moving bar graphically displays percent completed. When the screen shows Surface Analysis is 100% complete, BKUTIL will rewrite the tape's volume header and return you to the Format command.



## Format/Verify

The Format/Verify function allows you to format and verify a tape. All new tapes must be formatted before they can be accessed by Back-It 4.

To format a tape, place it in the drive, select Format/Verify, and press ENTER. A "Formatting Tape" window appears confirming that the format will erase all existing data on the tape. Press C to continue with the format, or ESC to abort and return to the Format command.

If you press C to continue with the format, BKUTIL will display the "FORMAT CONFIGURE" window, asking you to select the number of tracks to format. Press ENTER and the "SELECT" window appears, showing all available options. You may either format the entire tape or select specific tracks from the list shown. Highlight your selection and press ENTER. Now, press F2 to begin the formatting.

BKUTIL displays a "FORMATTING TAPE" window and the message "Preparing Media." After reading the tape another window is displayed showing statistics for the format, including Current Block and Time Elapsed. A moving bar graphically displays percent completed.

When the format is complete, BKUTIL verifies the portion of the tape being formatted by performing a Surface Analysis. A window is displayed showing statistics for the analysis, including Current Block and Time Elapsed. A moving bar graphically displays percent completed. When the screen shows Surface Analysis is 100% complete, BKUTIL will rewrite the tape's volume header and return you to the Format command.

As part of the format process, we suggest you label each new tape with the date it was formatted and the type of device for which it was formatted (e.g., 09/5/90 WT80).

NOTE: Some streaming tape devices format the tape cartridge as data is written. If you perform a Format/Verify on one of these devices, BKUTIL will only erase all data from the tape.

## QUIT

When you select Quit, BKUTIL saves all configurations not already saved and exits the program.



There are two ways to exit BKUTIL:

Highlight Quit with the ARROW keys and press ENTER.

- or -

With any of the main menu commands highlighted (no pull-down menus displayed), press Q.

## APPENDIX D - BKLOCK

The program **BKLOCK.EXE** is provided to allow you to restrict unauthorized access to your PC when a backup is scheduled.

In order for Back-It 4 to run a backup preset scheduled with the scheduler, you must leave your PC powered-on. Obviously, if the backup is scheduled to run overnight, you do not want to remain at the station until the backup runs. BKLOCK locks your PC by disregarding all keyboard input. Once BKLOCK is run, the only way to remove it is to reboot the PC.

*NOTE: If the PC is rebooted, a scheduled backup may not occur. It is recommended that the physical location of the PC be secured (e.g., office door locked).*

Run BKLOCK by typing BKLOCK at the prompt and pressing ENTER. BKLOCK displays the message:

**The keyboard is now locked! Press ESC to reboot**

and break any LAN connection.

This message will be displayed for 30 seconds, then the screen will be blanked. If at a later time any key is pressed, the above message is again displayed for another 30 seconds.



# APPENDIX E

## LAN ADMINISTRATOR'S GUIDE

### Getting Started

Installing Back-It 4 LAN on your network is easy. This section of the manual will help you understand the DOS environment variables required to use Back-It 4 LAN as well as walk you through the installation procedure.

### DOS Environment Variables

Back-It 4 LAN utilizes three DOS environment variables. These variables are used by the software to locate various files and to determine where to place the report file created with each backup. It is the Network Administrator's responsibility to assign values to these variables and place them in the user and system log-in scripts.

#### BKGBL

The BKGBL environment variable contains the path to where the Back-It 4 LAN files were loaded at installation. After software installation, the path to where the files were loaded should be added to the system's search path, and the BKGBL variable should be SET to that path in the system's login script.

For example, if the files were loaded into the directory GAZELLE/SYS:PUBLIC/BK4LAN, the login script would contain the statement:

**SET BKGBL=GAZELLE/SYS:PUBLIC/BK4LAN**

If the BKGBL environment variable is not set in the system login script, Back-It 4 LAN will attempt to find the files it needs by following the BACKIT environment variable (see below).

#### BACKIT

The BACKIT environment variable contains the path to where the configuration files are stored for each particular user or group of users. These files contain specific configuration information about the workstation the user normally uses. Contained in this subdirectory are such items as color settings, attached devices, floppy and hard-disk configuration, and the results of the DMA test. The network administrator



should set a path for BACKIT in each user's login script for each user allowed to use Back-It 4 LAN.

For example, if the configuration information will be placed in directory GAZELLE/SYS:USERS/JOHN/BK4LAN for user JOHN, the user's login script would contain the statement:

**SET BACKIT=GAZELLE/SYS:USERS/JOHN/BK4LAN**

If the BACKIT environment variable is not set in the user's login script, Back-It 4 LAN will look for the configuration files in the current directory. Further, if the BACKIT environment variable is not set, BKNODE will not run.

## **BKOUT**

The BKOUT environment variable contains the path to where Back-It 4 LAN will place the report file created with each backup. If a user desires a separate directory for these report files, the network administrator should set a path for BKOUT in each user's login script for each user allowed to use Back-It 4 LAN.

For example, if the report file will be placed in directory GAZELLE/SYS:USERS/JOHN/BKRPT for user JOHN, the user's login script would contain the statement:

**SET BKOUT=GAZELLE/SYS:USERS/JOHN/BKRPT**

If the BKOUT environment variable is not set in the user's login script, Back-It 4 LAN will use the path set in the BACKIT environment variable. If the BACKIT environment variable is not set, then the current directory is used.



## Installation Procedure

Before installing Back-It 4 LAN, set-up the BKGBL DOS Environment Variable as described in the previous pages. The BKINSTAL program uses the BKGBL path to know where to load the program files.

To install Back-It 4 LAN on your file server, follow these steps:

1. Login as the network administrator (i.e., with supervisor rights).
2. Insert the serialized Back-It 4 LAN program diskette into floppy drive A:.
3. Type A: and press ENTER.
4. Type BKINSTAL and press ENTER. If installing from drive B:, substitute B: for A: in numbers 2 and 3 above.
5. The opening screen of the install program lists two options: Install Back-It 4 LAN, and Exit. To begin the installation, highlight Install Back-It 4 LAN and press ENTER.
6. The next screen asks you to confirm the destination path for the Back-It 4 LAN files. If the displayed path is correct, press Y. If you need to change the path, press N. Then type the complete target path and press ENTER (if the destination path already exists, BKINSTAL will ask if you want to overwrite it).
7. The next screen asks you to make sure that the Back-It 4 LAN Program Diskette is inserted. Make sure that you have done this and press ENTER.
8. The next installation screen displays the source and destination paths and lists each file as it is installed.  
  
If you are installing from 5.25" media, BKINSTAL will prompt you when to insert the second (Back-It 4 LAN Device Drivers) diskette. Insert the disk and press any key to continue with the installation.
9. When the installation is complete, a message will display asking you to press any key to continue. At this point you will be returned to the BKINSTAL main menu. With Exit highlighted, press ENTER and you will be returned to the DOS prompt.



10. You must add the DOS environment variable BKGBL into the system's login script. BKGBL is the path to the directory where BKINSTAL loaded its files.
11. Logout and then log back in to enable the BKGBL DOS environment variable.
12. Move to the new Back-It 4 LAN directory and run BKUTIL. Configure tape drives for all workstations containing them.

You only need to configure tape drives of differing formats or system interfaces. For example, if three different workstations all have the same type of tape drive, each interfaced to the computer in the same way, you would only need to configure one device definition.

13. After the software has been installed and devices configured, make certain that the network subdirectory containing the Back-It 4 LAN files is set as "Read Only" for all users. This will help assure that individual network users will not create or modify device definitions.
14. For each user or group of users that will use Back-It 4 LAN, you must set the two DOS environment variables BACKIT and BKOUT in their login script.
15. Advise all users to run BKNODE to configure their environment, or, you may run BKNODE for each user after moving to their subdirectory.



## **Network Backups**

Back-It 4 LAN has a parameter especially for controlling backups on networks. The network options are located in the Parameters Box of the Backup Manager.

### **Network Options**

The Network Options parameter provides three network settings.

#### **AFP Files Backed Up**

The AFP Files Backed Up option determines whether Apple File Protocol (AFP) files are backed up. Back-It 4 LAN can backup both DOS and Apple files in a single backup.

##### **Yes**

When set to Yes, AFP files are included in the backup.

##### **No**

When set to No, AFP files are not backed up with the DOS files.

#### **Backup Bindery**

The Backup Bindery option determines whether network system files are backed up. The Bindery files contain information about users and the rights of those users on the network. They are comprised of components called objects and properties.

Objects include users, user groups, file servers, or print servers. An object can be any logical or physical entity on the network which has been given a name. Each object has an associated set of properties, which may include passwords, account balances, group members, etc.

##### **Yes**

When set to Yes, network system files are backed up.

##### **No**

When set to No, network system files are not included in the backup.

#### **Preserve Trustee Rights**

The Preserve Trustee Rights option determines whether the ownership and access privilege information associated with each directory on a network system is backed up.



## Yes

When set to Yes, ownership and access information is backed up.

## No

When set to No, ownership and access information is not saved.

## Network Recommendations

When doing backups on your network system, be aware of the following:

- Restoring **Trustee** information to a different network will not work without restoring the system **Bindery** to that new network as well. This is necessary so the new network will contain all critical system information.

Follow these steps to backup the system Bindery:

1. Tag the directory where the Bindery files reside (SYS/SYSTEM).
  2. The Backup Bindery and Preserve Trustee Rights options in the Network Options screen need to be set to Yes.
- Restoring the Bindery resets the system to the state of the last backup. Any modifications to the bindery information since the last backup of the Bindery (such as new users, trustees, etc.) will be lost.
  - In some cases, if the network administrator has set-up the network with "Disk Resource Limitation" (see Novell Supervisor Reference), restoring the bindery may cause adverse affects. If an existing user in the Bindery has a different user ID in the backup, the disk usage account will be corrupted by a restore. The user will be able to read information, but will not be allowed to write anything to the file server because the account is full.
  - We recommend that the DOS environment variable BKGBL be defined in the system login script.
  - The Network Administrator should assure that only read privileges are granted for the directory pointed to by the BKGBL environment variable.
  - The Network Administrator should assure that the DOS environment variables BACKIT and BKOUT are set in the login script for each workstation user or group of users.
  - Back-It 4 LAN will not backup network subdirectories that have names longer than 8 characters.



# GLOSSARY

## **Archive (flag)**

Any time a file is created or modified, DOS sets a flag indicating that the file needs to be backed up.

## **AUTOEXEC.BAT**

This batch file contains start-up procedures that customize DOS to the individual operator's needs each time the system is started.

## **BIOS (Basic Input/Output System)**

Controls all input and output between memory and other devices.

## **Byte**

The amount of storage space required to store one character of data.

## **CONFIG.SYS**

A file loaded at start-up to configure the operating system accommodating special hardware or software additions.

## **Configuration**

A configuration is list of default settings affecting the way Back-It 4 operates.

## **Cursor**

An indicator which shows your current position on the screen. When using Back-It 4, the ARROW, HOME, and END keys move the cursor from command to command or from field to field for editing.

## **Default Directory**

The current drive and directory used by the computer to save and retrieve files unless otherwise specified.

## **Directory**

Used to organize data or program files on a storage medium in much the same way as the file folders are organized in the file drawers. Back-It 4 users directories to find groups of files that are to be backed up or restored.

## **Directory Map**

A tree-like graphical presentation of the relationships between directories.



### **Directory Path**

The method DOS uses to locate a specific file, including the file's current directory and any parent directories. For example:

`C:\SUBDIR1\SUBDIR2\FILENAME.EXT`

### **Diskette (disk)**

A removable storage medium onto which information is recorded for future use.

### **DMA Chip**

The Direct Memory Access controller manages the reading and writing of data between the hard disk and other peripherals.

### **DOS (Disk Operating System)**

A set of software programs which allow a microcomputer's hardware to communicate with and be accessed by software. DOS must be running before you can start Back-It 4.

### **DOS Device**

A hardware device that is treated by DOS as a standard DOS diskette drive. For example, some tape drives are treated by the operating system and the application software as very large diskettes. These devices can be accessed with drive letters.

### **DOS Environment Variables**

DOS Environment Variables are values stored by DOS which provide programs with information not embedded in the program itself. Users can set up variables in their environment and assign each a value. Variables in the DOS environment are strings of ASCII characters.

Environment variables have the following format:

`VARIABLE=VALUE`

An example of an environment variable would be the BACKIT variable used by Back-It 4. It might look something like this in the DOS environment:

`BACKIT=C:\BACKIT4\`

### **DOS Prompt**

The ">" (greater than) symbol that lets the operator know that the computer is ready for a command to be entered.



**Drive Name**

The "C:" (letter and colon) that identifies the disk drive you want to use. For example: C:\BACKIT\BK4.EXE identifies the program file BK4.EXE within the subdirectory BACKIT which is in the root directory on drive C.

**FAT (File Allocation Table)**

An area on every disk where the operating system stores the location of each file. The table also allocates the free space so there is enough room to create new files.

**File Attributes**

Every file has a flag to designate one of the following attributes:

A=archive flag

S=system file

R=read-only

H=hidden

**File Name**

A name selected to identify a specific group of data. Filenames can have up to 8 characters (numbers or letters) plus a 3 character extension. The extension must follow a period as the following example shows:

BK4.EXE

**Floppy (disk)**

A magnetically coated flexible mylar disk enclosed in a protective plastic jacket, used for storing files.

**Format (a disk)**

The process of preparing a disk to index and store data by setting up tracks and sectors on the disk.

**Format (360K)**

A 5 1/4" diskette with 40 tracks per side and 9 sectors per track.

**Format (720K)**

A 3 1/2" diskette with 80 tracks per side and 9 sectors per track.

**Format (1.2MB)**

A 5 1/4" diskette with 80 tracks per side and 15 sectors per track.

**Format (1.44MB)**

A 3 1/2" diskette with 80 tracks per side and 18 sectors per track.



**Hard Disk (Fixed Disk)**

A storage medium which is solid, continually spinning, and magnetically coated. It is referred to as fixed because it is permanently inside the computer and not removable.

**Hardware**

The part of the computer you can touch, such as the monitor or printer.

**IBMBIO**

A hidden program within DOS that acts as an interface between DOS programs, applications programs and the BIOS (Basic Input/Output System).

**IBMDOS**

A hidden program within DOS that controls the organization of data on a disk and keeps track of the location of each file.

**KB (Kilobyte)**

Refers to about one thousand (actually 1,024) bytes of space.

**MB (Megabyte)**

Refers to about one million (actually 1,048,576) bytes of space.

**Memory**

The temporary storage area where programs reside when in use. Memory is erased when the power is interrupted or turned off.

**Multiple Backup Sets**

A tape can contain multiple backups. When adding a backup set to a tape already containing a viable backup, you must select Overwrite to No. In this way the new backup set will be appended after the existing one(s). It is important to verify that you have selected the proper backup set when restoring from tape.

**Preset**

A saved backup configuration that can be executed from Back-It 4 or from the DOS prompt.

**Retention**

Since tape devices have the tendency to gradually increase tape tension with each use, BKUTIL has an option to produce uniform tension over the entire length of the tape.



## **Root Directory**

The main directory that DOS creates on each disk; the top directory in the multi-level filing system.

## **Sectors**

Equal divisions on a disk. The number of sectors on a disk depends on the type of disk and how it is formatted. For example, a 360K diskette has 9 sectors, while a 1.2MB high density diskette has 15 sectors. These sectors divide the tracks on the disk for file allocation purposes.

## **Streaming Tapes**

A tape device that formats the tape as data is written. All file positioning is done from the beginning of the tape. As this type of tape device constantly keeps the tape moving, the result is faster data transfer. However, specific files cannot be located by sector or block number.

## **Subdirectory**

A directory within a directory. For example:

`C:\WORD\LETTERS\GEORGE.LTR`

"GEORGE.LTR" is a file within the directory "LETTERS" which is a subdirectory of "WORD," a subdirectory of the root directory on drive C:.

## **Tracks**

Concentric circles on a disk where data is written and retrieved. The number of tracks on a disk depends on the type of disk and how it is formatted. For example, if you format a disk with a 360K format you set up 40 tracks (0-39) per side; all other formats (720K, 1.44MB, and 1.2MB) will give 80 tracks (0-79) per side.

## **TSR (Terminate and Stay Resident)**

A program designed to remain in memory after completion. This makes it possible for the operator to quickly reactivate the program without having to reload it.

## **Volume**

A logical drive (C:, D:, etc.) or a network drive (GAZELLE/SYS:, etc.).



**Window**

A restricted area on the computer screen where you view program options, other parts of a file, or edit data within the file.



# NOTES

Window  
A restricted area on the computer screen where you view pro-  
gram options, enter parts of a file, or edit data within the file.



# NOTES



# NOTES



# NOTES



# NOTES







**GAZELLE**

Gazelle Systems, Inc.

305 North 500 West

Provo, UT 84601

801-377-1288